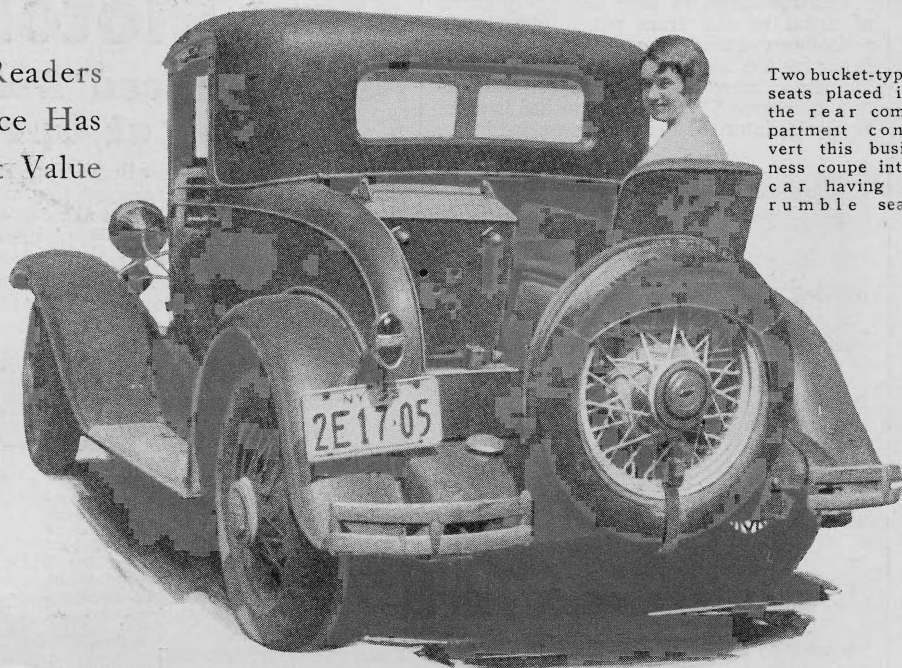


Useful Hints for Car Owners

Ideas Furnished by Our Readers
Whose Practical Experience Has
Demonstrated Their Great Value

BY INSTALLING two bucket-type seats, I recently converted the rear compartment of my business coupe into an inexpensive, yet comfortable, rumble seat. An automobile junk yard that harbored a disabled coach yielded the seats for a few dollars. After the lid to the rear compartment was removed by loosening two bolts, I placed the seats to allow plenty of leg room and bolted their hinged standards to the compartment floor. When not in use, the seats can be folded down and the lid replaced. If at any time I want to remove the seats entirely, all I have to do is pull out the hinge pins in the standards.—R. G. A.

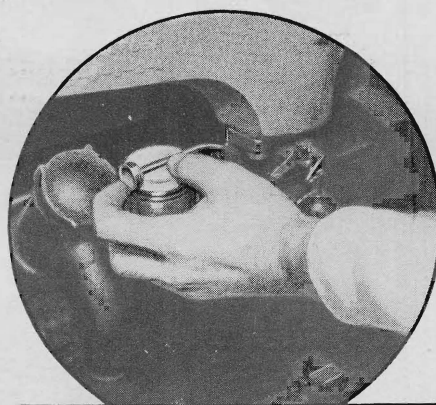


Two bucket-type seats placed in the rear compartment convert this business coupe into car having a rumble seat



Sticking Garage Doors

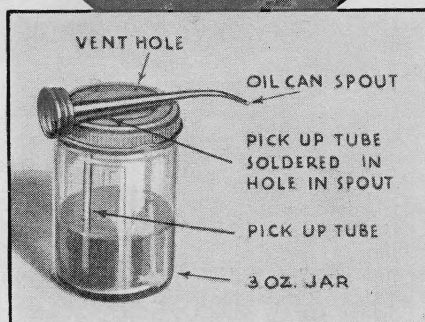
IN THE winter, swinging garage doors often stick and freeze along their bottom edges. As a result, every bit of snow that accumulates on the driveway in front of the doors must be cleared away before the doors can be opened. You can make this less of a chore, however, by altering the construction of the doors and supplying an oak sill. Since it is generally the snow and ice on the driveway directly in front of the seam between the two doors that causes the trouble, cut the door bottoms at an angle as shown and install a triangular sill that will provide about four inches of center clearance.—J. D. G.



Cutting the bottom of garage doors on an angle, as shown, will keep ice from forming so they stick. Note oak sill high in center

Oiling Cylinders

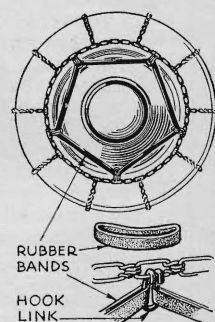
HERE is a simple device for quickly introducing any given quantity of oil into the upper cylinders of a new or reconditioned motor during the initial running-in period. It is made up from a small, mayonnaise jar, an oil can spout, and a short pick-up tube having an inside diameter of approximately one-sixteenth-inch. After drilling a hole in the oil can spout near its larger end, solder one end of the pick-up tube directly over the hole. The pick-up tube then is inserted in a hole in the screw top of the mayonnaise jar and a fillet of solder placed around it to hold it in place. The screw cap also should be provided with a small vent hole. To use the injector, fill the jar with



upper cylinder oil and with the motor running at a fairly high speed, hold the jar so the oil-can spout rests in the air intake of the carburetor idling jet. By placing a finger over the large end of the spout for short intervals, you can cause the motor suction to draw the oil up through the jet into the cylinder.—R. J. W.

Tire-Chain Spreader

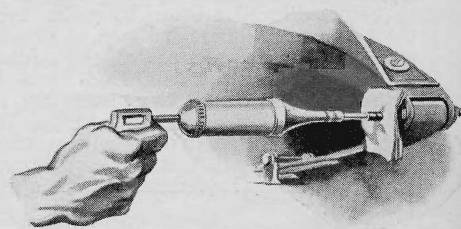
WITH the coming of ice and snow, owners of many of the modern cars may find that the jumbo hubs gracing the new wheels make it impossible to fit spring spreaders to their tire chains. Being large in diameter, the disk hubs interfere with the spring links of the spreaders. However, spreaders that will fit can be made from narrow bands cut from a worn-out inner tube. Five bands will be needed for each wheel. The spreaders are hooked to the side chain at equally spaced intervals by means of hooks made by opening the looped ends of cross-link fasteners taken from an old chain.—H. F.



Rubber bands cut from old inner tube serve as inexpensive tire-chain spreaders

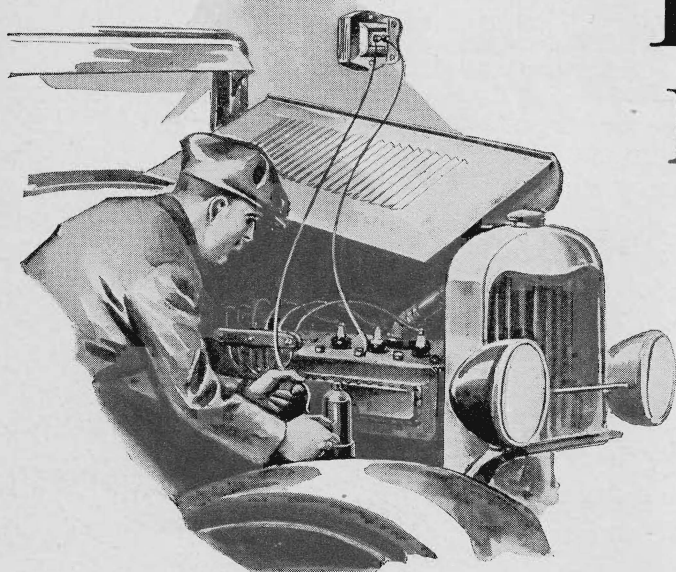
Leaking Grease Fittings

WHEN grease fittings become nicked and worn, they very often leak grease when the gun is applied. You can prevent this by placing one or two thicknesses of cheese cloth over the fitting before attaching the gun. The cloth will serve as gasket.—E. J. N.



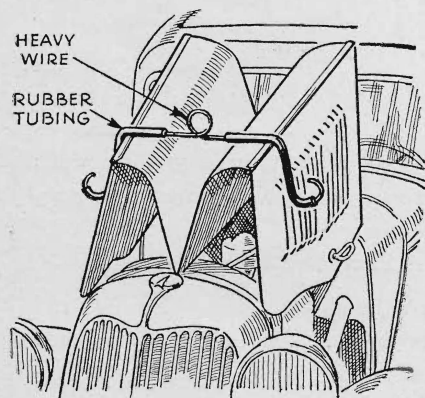
Tricks to Help MOTORISTS

Valuable Suggestions for Drivers
Contributed by Experienced Readers



Bell Transformer Starts Car With Dead Battery

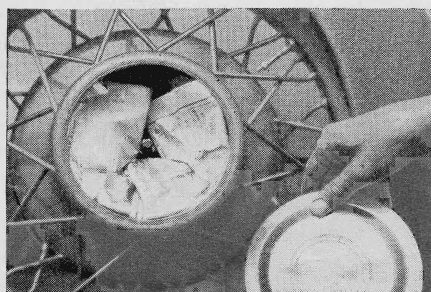
ONE morning recently when I was in a hurry to get the car started, I came to the sad realization that my battery was dead. Spinning it by hand failed to stir up even a sputter. In trying to think of some way out, I spied the six-volt transformer that supplied the bell system in the house (my garage is built into the house). With the car ignition switch off, I connected two wires to the six-volt side of the transformer, wired one lead to the wire that usually supplies the battery current to the ignition coil, and grounded the other to the motor. When I spun the motor this time, it started easily. Then, acting quickly, I switched on the car's ignition and at the same time yanked the two transformer wires free of their moorings on the motor. Unfortunately, this system will not work on cars fitted with protected distributor cables.—J. J. A.



Wire Holder for Hood

OFTEN when working on a car motor, it is convenient to have both sides of the hood open at the same time. The wire hood holder shown makes this possible. The holder can be made from any scrap of sturdy wire. To protect the finish on the sides of the hood, slip short lengths of small rubber tubing on each of the legs.—M. A.

Transformer, supplying the bell system in residence, was wired to car's ignition coil and used to start the car when battery failed



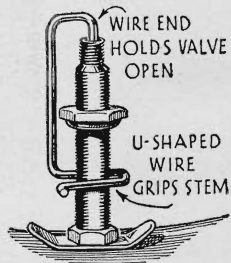
Storing Towel and Soap

EVEN under the best conditions, changing a tire is a messy job. But it always seems worse when you are on the road and have no towel and soap for the cleaning-up process. However if your car has large hubs, there is no excuse for not carrying a towel and soap with you. The space under the hub cap of your spare

tire provides room for several towels. Wrap them in paper, stuff the package inside the hub, snap the disk cap back into place, and they will be there when you want them to clean up after a dirty job on the road.—R. M.

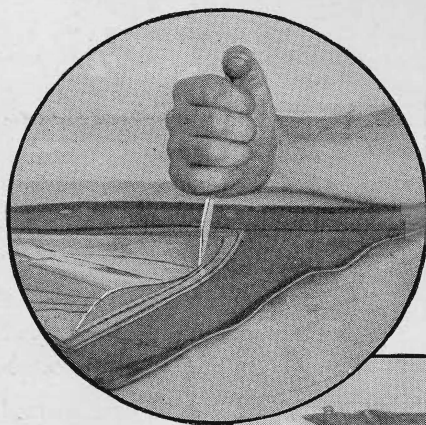
To Deflate Inner Tube

AFTER testing an inner tube for leaks, you are confronted with the problem of deflating it. Of course, you can let the air out by holding down the pin with the valve cap but that takes time and keeps you from your work. The easiest solution to the problem is to make the simple tire deflator shown in the drawing. It consists of a piece of stiff, springy wire bent to form two U-shaped loops—one horizontal and one vertical. The wire at the end of the vertical loop is inserted in the top of the valve to push down the pin while the horizontal loop holds the wire in place. —M. Y.

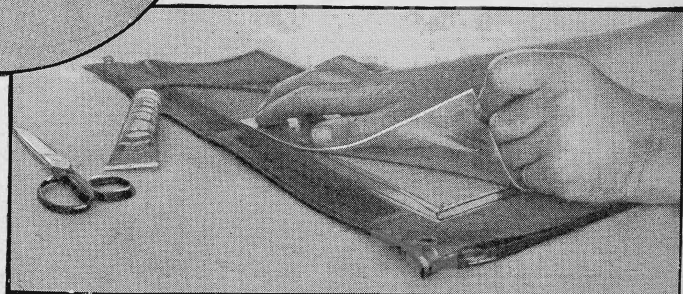


Drawing shows how to make wire device that depresses pin in valve stem and so releases air

Replacing Celluloid Windows in Side Curtains



LACK of strong needles and sewing ability is no excuse for not replacing the broken celluloid windows in your side curtains. With sheet celluloid and cement, you can do the job quickly and easily. First, remove the old window by cutting it out even with the opening. This will leave the strip with the stitching, which in most cases is in good condition, attached to the curtain cloth. Then cut the new window the same size and shape as the original. Finally, using a modern quick-drying cement, stick the new windows to the stitched edges.—J. D. S.



When windows in side curtains wear out, new ones are made of sheet celluloid. After the damaged curtain is cut out, as above, the new curtain is cemented to edge of old one as shown at right

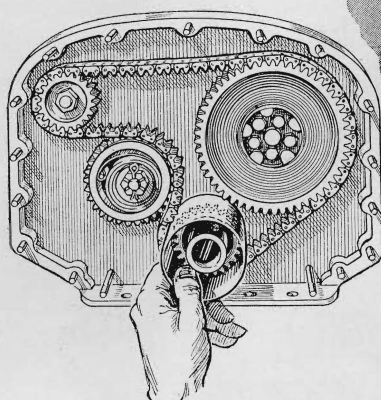
Helpful Hints for MOTORISTS

New Ways of Doing Things Described
by Our Readers for All Car Workers

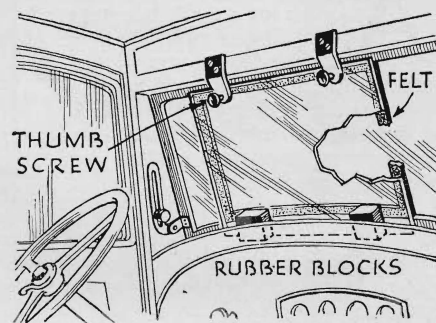


When a tight shackle bolt stops the lubricant, jack up the car and tap with a hammer

WHEN lubricating a car equipped with a pressure system, one frequently encounters a tight shackle bolt that has become clogged with old lubricant. Being caked, it forms a tight plug that resists the pressure of the lubricating gun. To loosen such a bearing, simply remove the weight of the car from the spring and tap the bolt with a hammer as the new lubricant is forced in. The free bearing, plus the jarring and the pressure, generally will loosen the old lubricant. In jacking the car up, place the jack under the frame near the spring in question and raise the frame just enough to bring the wheel to the point where the tire is barely touching the ground.—R. McC.



than the crankshaft gear. After the chain has been lifted free, slip the can over the gear. By preventing the gear and chain from meshing, the can will make it possible for you to insert the crank and turn the gear until the reference marks are in their proper locations. When the adjustment has been made, remove the can and the chain will then easily slip back into place.—R. M. C.



Anti-Steam Windshield

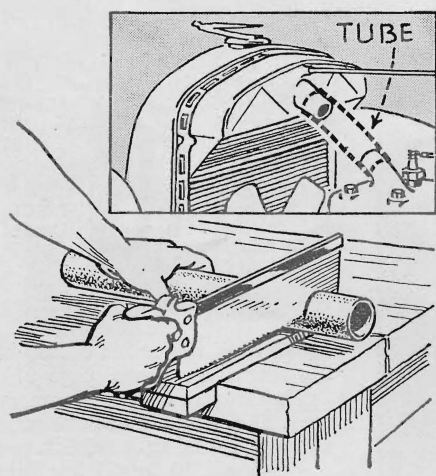
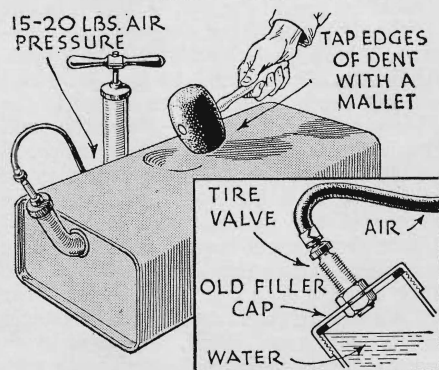
WITH some felt, a section of glass cut from an old windshield, two easily made clamps, and a few blocks of rubber, you can fit your car's windshield with a valuable anti-steam glass. As shown in the illustration, the felt holds the inner glass away from the windshield proper, forming an air pocket that will prevent steam from forming and obscuring the driver's view when it becomes necessary to drive with the windows closed. The two clamps are fastened to the frame just above the windshield, while the two rubber blocks are used as wedges to hold the lower edge of the glass in place. When not needed, the glass can be removed by loosening the thumb screws.—E. E. H.

Running Board Treads

AMATEURS get into difficulty when they attempt to replace running board treads that have worn through, because the new material tends to pucker up in places. This can be overcome by weighing down the new rubber matting with a thick layer of sand until the cement dries. Incidentally, ordinary sodium silicate, more commonly known as water glass, and used in preserving eggs, is an excellent cement for this purpose. It can be purchased in quart cans from any large grocer and will cost less than the same quantity of ordinary rubber cement.—D. J. B.

Removing Dents From Gasoline Tanks

BY USING water, air pressure, and a rubber or wooden mallet, you can remove small dents in a car's gasoline tank. After all openings except the filler pipe have been plugged, fill the tank with water and apply an air pressure of about fifteen pounds with either a hand pump or garage compressor. Then tap lightly around the dent with the mallet. The jarring, combined with the pressure, generally will force the metal out flush with the sides. To apply the air pressure, fit a spare gasoline tank cap with an old tire valve as shown, inserting washers under the nuts to make it airtight.—J. M. V.



Cutting Rubber Hose

WHEN cutting new sections of radiator hose to the proper length, a neater job will result if you use an ordinary crosscut saw rather than a knife. Simply handle the piece of hose as you would lumber, holding it firmly in a vise or ordinary bench block. Saw slowly and with short strokes, applying just enough pressure to make the saw cut.—G. H. B.

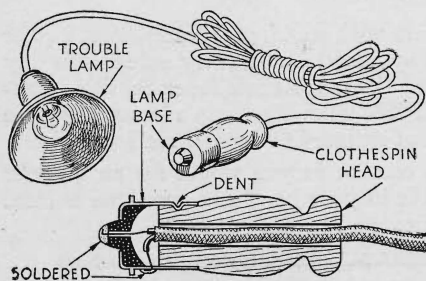
Adjusting Timing Chain

READJUSTING a timing chain that has jumped a tooth oftentimes proves to be a difficult job for the lone mechanic to handle. At best, lifting the chain and turning the crank requires more than two hands. On cars having an automatically adjusted chain, however, the writer has found the following method to be successful: First, cut the top and bottom from an ordinary tin can that is slightly larger



An emergency window can be made of cardboard and sheet celluloid and installed to replace broken glass, as shown above

WHEN a car window is shattered, it is sometimes a week or more before a new glass can be obtained and installed. A temporary repair, however, can be made with heavy cardboard and a large piece of sheet celluloid of the type sold in auto supply stores for repairing side curtains. Trim the cardboard to the full width of the window opening, leaving about three inches to spare in the length. Then cut the opening for the window and stitch the celluloid in place with heavy thread. The makeshift window finally can be installed by inserting the bottom edge in the regular opening in the door, (see illustration), lifting it until the top edge fits snugly in the felt groove at the top of the frame, and jamming two wood or rubber wedges between the cardboard and the frame along the bottom edge on the inside to hold it in place.—J. Z.



Trouble-Lamp Plug From Old Bulb Base

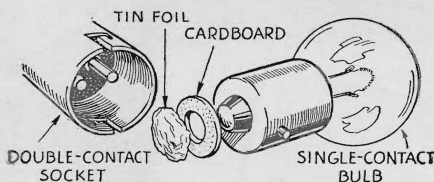
OWNERS of cars fitted with exposed dashboard lights can make a convenient trouble-lamp plug from the base of a broken bulb and the end of an ordinary clothespin. When completed the plug makes it a simple matter to connect an auxiliary extension to the car's battery. The handle for the plug is made by cutting the upper half from a wooden clothespin. Drill a three-sixteenths-inch hole through the center and file the lower end to be a tight fit in the bulb base. Thread

Ingenious Ideas FOR CAR OWNERS

Our Readers Furnish New Suggestions
For Handy Repairs and Improvements

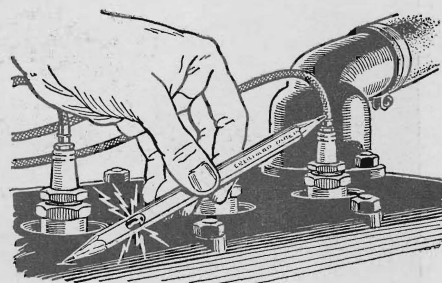
the extension cord through the handle, solder the wires to the filament leads in the base, and finally drive the handle into the base. Then, using a pointed nail, make three or four deep dents in the metal sides of the bulb base. These will serve to hold the handle in place. The same kink can be used to advantage on newer cars if the owners will install a bayonet-type socket under the dash-

board and connect it to the battery supply. For durability, it will be best to use a rubber-covered cord.—C. B.



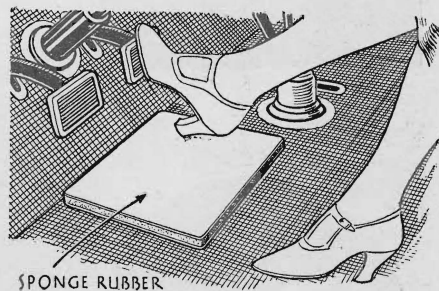
Repairing Headlights

IF YOUR car uses double-filament bulbs in the headlights and they happen to burn out when you are traveling along some out-of-the-way road, you may find that the nearest service station carries only the single-filament variety. Placed in the regular double-filament sockets, these single-contact bulbs will not light, but by making use of some scraps of cardboard and a piece of foil from your cigarette package you can make them serve. First cut a cardboard washer, making it large enough to cover the base of the bulb and the hole big enough to allow the single contact to project through. Then fold the foil to obtain several thicknesses. Finally, with the washer and tin foil held in place with a bit of chewing gum, place the bulb in the socket. Arranged in this way, the bulb will light as contact will be made no matter which way the light switch is thrown.—P. L. H.



Spark-Plug Tester

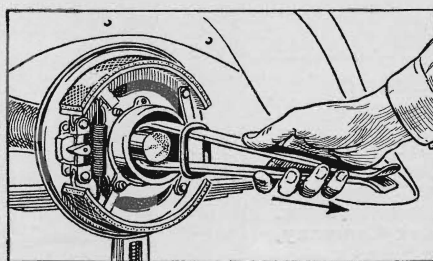
MADE from a pencil, the spark-plug tester, above, forms a valuable addition to any automobile repair kit. Sharpen both ends of a large pencil and then drill a small hole through it at about its middle. In use, the projecting lead at one end is held against the terminal on top of the spark plug while the other end is grounded against the motor head. If the spark plug is functioning, a spark will jump across the gap.—J. M. V.



Sponge-Rubber Mat

PLACED on the floor directly beneath the brake and clutch pedals, a rectangle of sponge rubber will cover any holes worn by the driver's heels and will protect the high heels of lady drivers. Cut the sponge rubber to the desired size and cement it to the flooring mat with rubber-patching cement or ordinary water glass (sodium silicate).—E. W. B.

Tool to Grip End of Broken Axle



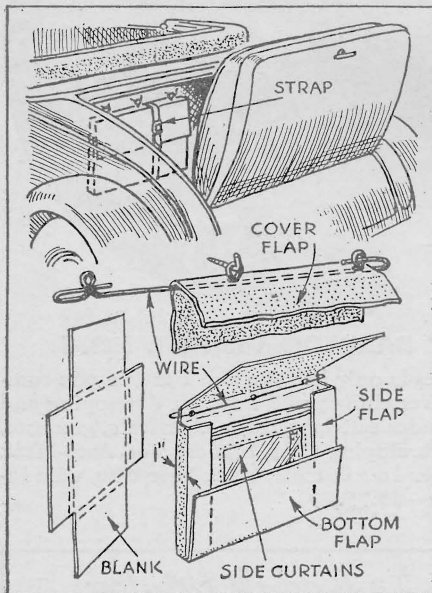
BY USING two tire irons and a large link from a chain you can improvise a good tool for gripping the end of a broken rear axle, as is shown in the illustration at the left. Simply slip the tire irons over the axle end and then slide the link over the ends of the tire irons, pushing it toward the axle until it holds them firmly together. The projecting ends of the irons can be used as a handle as shown at the left.—A. B.

Useful Short Cuts for MOTORISTS

Suggestions for Quick Repairs and Handy Improvements on Cars Made by Our Readers

Sheet of orange cellophane over headlamp helps light pierce fog

LIVING in a section of the country where fogs are a frequent danger to those who venture out in a car, I devised a simple kink to get clear visibility even on the soupiest nights. Borrowing the idea from the modern neon beacon, I found that a smooth sheet of orange or light-red cellophane fastened over the lens of each head lamp with a strong rubber band colored the light just enough to allow it to pierce the fog. According to experts, the explanation is that light at the red end of the spectrum is less easily dispersed by fog or dust than is blue light.—W. R. J.



Side Curtain Case

WHEN I first became the owner of a small roadster, I spent considerable time trying to find some convenient place to stow away the side curtains when they were not in use. At first, I decided on the tool compartment under the front seat, but the tools scratched the celluloid "windows." Finally, I made the simple case shown in the illustration.

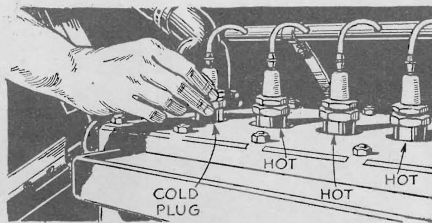
A piece of heavy yet flexible cardboard

served as material for the case. It was cut cross-shaped, so that the flaps when folded back form an inch-thick envelope just wide enough and long enough to house the curtains.

To mount the case, an ordinary wire coat hanger was first straightened and then reshaped to form three small loops. These project through three small holes cut in the upper edge of the

case and hook over three hooks screwed into the wooden framework at the front of the rumble seat compartment. An ordinary slip-buckle strap is used to hold the case closed. If desired, the case can be given a coat of shellac and then painted.

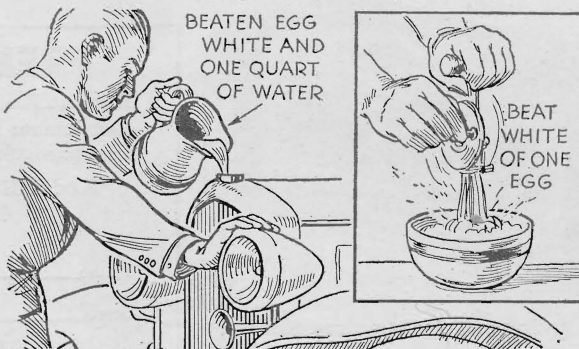
When storing the curtains, all sides should be unfolded and the curtains laid flat in the case. Soft cardboard separators (shirt boards will serve) can be placed between the curtains to prevent them from rubbing together.—M. A. F.



Finding Faulty Plug

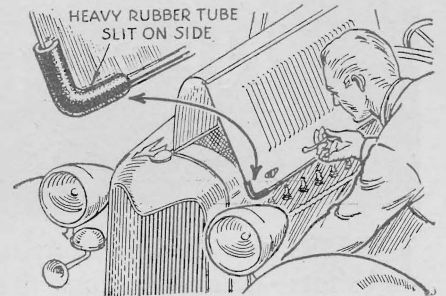
ALTHOUGH many tricks are used to locate a spark plug that is missing, the easiest way that the writer has found requires no tools or homemade testers. Simply start the motor when it is cold and allow it to run until it is warm. Then stop the motor and feel the base of each spark plug. The spark plug that has been missing will be colder than the rest.—E. J. N.

Emergency Repair of Radiator Leaks



White of egg beaten to a froth is mixed with quart of water and poured in radiator. It coagulates and will stop a leak

ONE way to stop small leaks in a radiator core is to beat the white of one egg to a froth, mix it with one quart of water, and pour it into the radiator. The writer has found that as soon as the water gets hot, the mixture coagulates and will stop any small leaks that may exist without interfering with the normal circulation of the radiator and cooling system.—K. M.

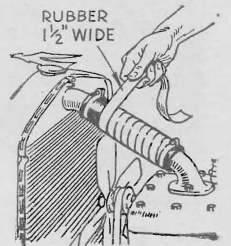


Guards for Hood

ON MANY modern cars, the head lamps are so placed that they receive scratches and dents from the front corners of the hood everytime it is raised or lowered. This can be prevented by providing these offending front corners with improvised bumpers made by splitting short lengths of heavy rubber tubing lengthwise and slipping them over the head that edges the corners of most hoods. If desired, the tubing can be held rigidly in place with cement.—O. B.

Mending Radiator Hose

WHEN making an emergency repair on a leaky radiator hose, your first thought will be to use ordinary friction tape. However, if tape is used alone, the heat and water soon dissolve the adhesive. A better method is to use a long strip of rubber cut from an old inner tube. Wrap it around the hose in the manner shown. Then apply a layer of friction tape to hold it in place.—J. L.



AUTO IDEAS

*Hints for Car Workers
Supplied by Our Readers*



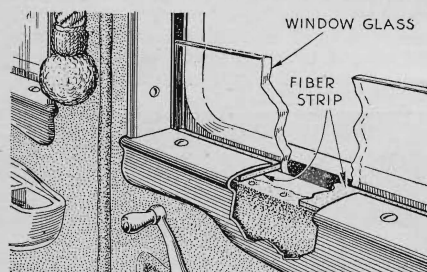
A series of holes in an ordinary strip of wood lathing, serve as a rack to hold valves when they are removed from the cylinder block for cleaning

Rack for Valves

A HANDY aid for the amateur mechanic who services his own car is the simple valve stick shown above. Made by drilling a series of holes in a strip of ordinary wood lathing, it serves as a rack for the valves as they are removed from the cylinder block. Placed in line with the motor, it holds the valves in their proper order.—R. R. K.

Stops Window Rattle

TO STOP a monotonous window rattle in my closed car, I recently removed the sill, cut a piece of fiber (heavy cardboard would have served) to fit tight against the window pane, and fastened it under the sill by means of the regular mounting screws that hold the sill in place. After this was installed on all windows, I found that it not only stopped the rattles but helped to keep out drafts as well.—J. P.

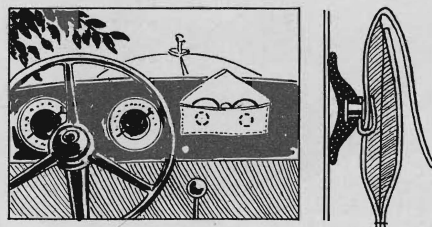


Piece of fiber, cut to fit the pane snugly, is fastened under sill and stops window rattle

Holder for Eyeglasses

DESIRING a safe, convenient storage place for his driving glasses, the writer made the inexpensive holder shown. It consists of a thin leather case provided with two small suction cups to hold it in place. The cups make it possible to place the holder on the dashboard, windshield, or any convenient flat surface. To obtain

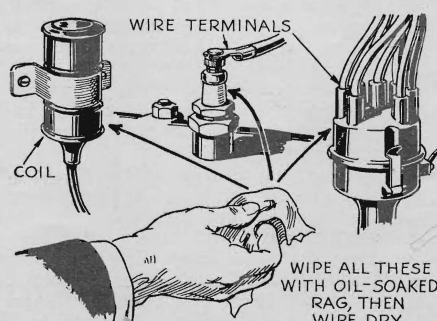
of the case. Of course, if desired the cups can be sewed or cemented to the rear of the case. Incidentally, a flexible leather eyeglass case of this type often can be obtained from a neighborhood oculist for very little.—E. W. B.



Fastened to dashboard or windshield with suction cups, this case holds driving glasses

Drying Wet Ignition

WHEN a wet ignition system makes it impossible to start your car, rub the coil, spark plugs, distributor cap, and wire terminals with a cloth dipped in motor oil. Wiping with a dry cloth then will remove every trace of the moisture along with the oil. I have used this method on several occasions after a heavy rain soaked the motor and it has never failed to give quick and satisfactory results. Once, when a cloth was not handy I used a crumpled ball of old newspaper.—R. F. E.



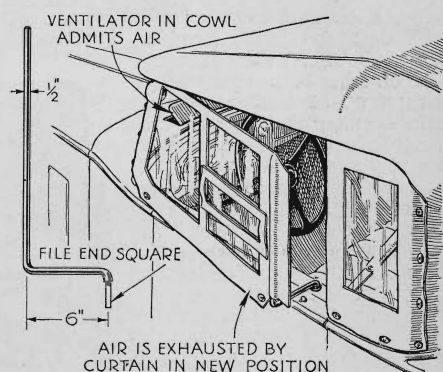
To start a car when ignition is wet, wipe parts with motor oil and then dry with soft cloth

suction cups of the right size, two fixtures generally used for holding cards or menus in store windows were purchased for five cents each. The spring clips were cut off and the strip of metal remaining bent into the shape of a hook and inserted in a slit cut in the rear



Draining Valve Chamber

ON LIGHT four-cylinder cars having an oil compartment in the valve chamber for supplying the rear main bearing with oil, an accumulation of thick oil and dirt sometimes is trapped in the compartment. Ordinary engine draining has little effect on this trapped muck but by following the suggestions outlined in the drawing above, the amateur mechanic can supply a drain hole. Simply remove the bottom bolt at the rear of the valve chamber and drill a 3/16-in. hole through the bottom of the bolt hole into the chamber. Then removing the bolt at oil-changing time will provide an exit for the thick oil. The bolt must, of course, be replaced tightly before starting the motor.—C. T. S.



Improving Side Curtains

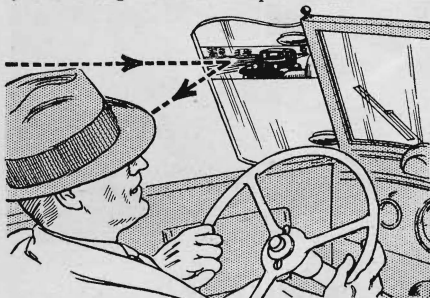
WITH a few changes, the side curtain equipment of open roadsters can be altered to give a modified form of draftless ventilation. As shown in the illustration, the only change necessary consists of making two new supporting rods to fit the mounting holes in the top edge of the door. The new rods, bent from 1/2-in. round stock, should have a 6-in. offset instead of the 2-in. elbow supplied on the stock equipment. The additional bend serves to hold the rear edge of each curtain away from the car. The cowl ventilator then can be adjusted to supply intake air.—E. A. K.

Handy Hints for MOTORISTS

Suggestions Valuable for All Car Drivers Contributed by Readers

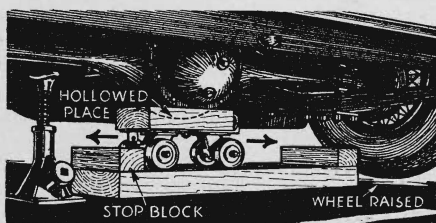
Moving Stalled Car

IF YOU have ever tried to push a stalled car, you will agree that it can be quite a task, particularly if there is a slight grade upward. The next time you find yourself in such a predicament and no help is available, try your hand crank. Put the car in reverse or high gear, depending on the direction it is to be moved, and turn the crank with your right arm while you push or pull the radiator with your left. If the car is a heavy model, or mired in mud or snow, remove the spark plugs to ease up on the compression. Not long ago, a lone driver in New York State moved his stalled car free of a railroad crossing by resorting to this simple kink.—E. L.



Rear-View Mirror

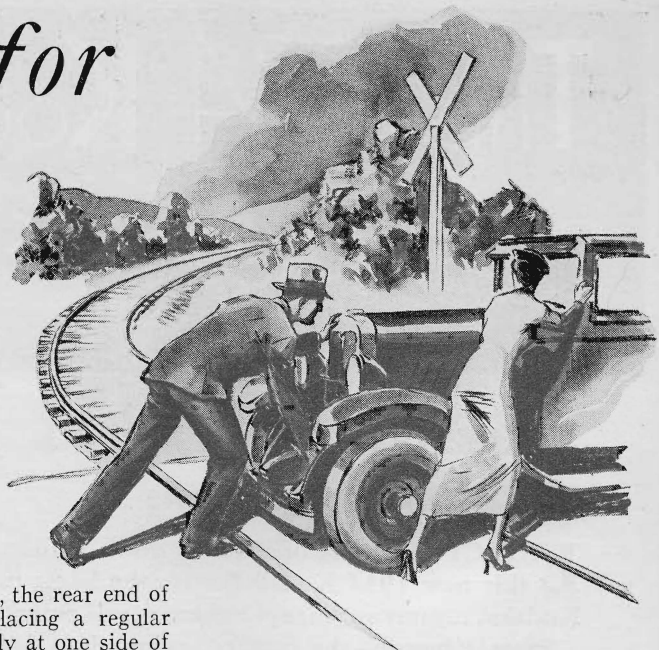
DESIRING a rear-view mirror on the driver's side of my car without adding an extra piece of equipment, I conceived the idea of having a 4-in. wide strip on the left wind-wing silvered. I find that it does not interfere with the driver's forward view and can be adjusted to any angle. To protect it against rain and moisture, I applied several coats of thin waterproof varnish to the back side of the silvered area. The entire expense of silvering was no more than the cost of a mirror and the combination eliminates a bothersome accessory.—E. L. B.



Rolling Car Sideways

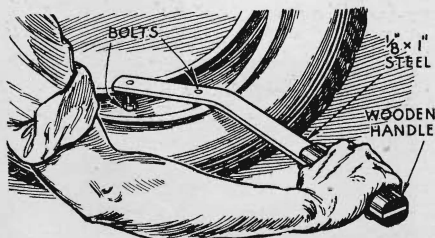
OFTEN when making home repairs in a crowded private garage it is impossible to maneuver the car into a good position that will be near the bench as well as a window. The writer got around this difficulty by using a simple roller-

When a car is stalled, it can be moved, as at right, by putting it in gear and then turning the engine over with the hand crank. This is a good thing to know in an emergency



skate arrangement. First, the rear end of the car was raised by placing a regular jack under the axle slightly at one side of the differential housing. A small block of hard wood, hollowed out to fit the bottom of the differential, then was fastened to the top of a sturdy roller skate with screws and nails. This assembly was placed on a large square of hardwood, fitted with stop blocks at each end, and eased under the differential as shown. Finally, the jack was removed. The car resting on the skate then could be shifted easily.—J. A.

Good Tire Spreader



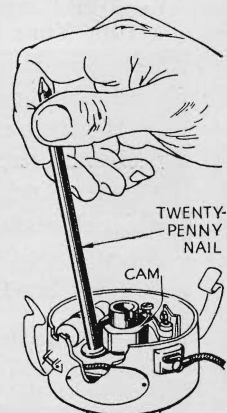
THIS homemade spreader eliminates the usual difficulty of holding a tire open while inspecting it for puncture holes, tacks, or worn spots. It consists simply of a piece of $\frac{1}{8}$ -by-1-in. steel, heated and bent at a slight angle as shown. Two bolts are tapped into the short arm. In use, the spreader can be operated easily and rapidly with one hand leaving the other free. The bolts, held parallel to the tire, are inserted between the rim beads and then the handle of the spreader is pulled toward the user. This automatically spreads the edges of the tire apart. By working the handle back and forth as the tire is turned, a rapid inspection can be made.—W. E. S.

Repairing Timing Gears

WHEN my timing gears started to get noisy recently. I was confronted with the problem of either paying a ragaman \$10 for the job or trying to fix them myself. I decided on the latter and on removing the gears found that the fiber gear, although in perfect shape otherwise, was badly worn around the key slide. I remedied that, however, by filling the old groove with melted battery-top compound and by filing a new keyway on the opposite side of the gear.—J. H.

Distributor Cam Wrench

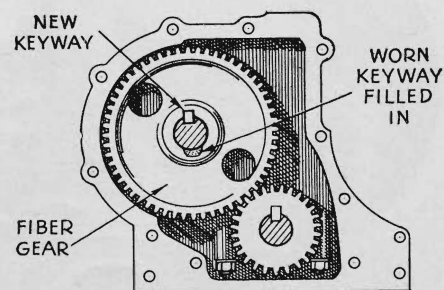
WHEN it is necessary to adjust a distributor, most home mechanics find it difficult to loosen the timing cam. Service men do the job easily with a special hook-shaped wrench, but few amateurs have such a tool. However, a twenty-penny spike can be made to serve as a good substitute. Merely slip one edge of the flat head under the cam and pull the spike end away from the shaft in a prying motion. The writer has used this makeshift successfully on several makes of motors.—L. VanT.



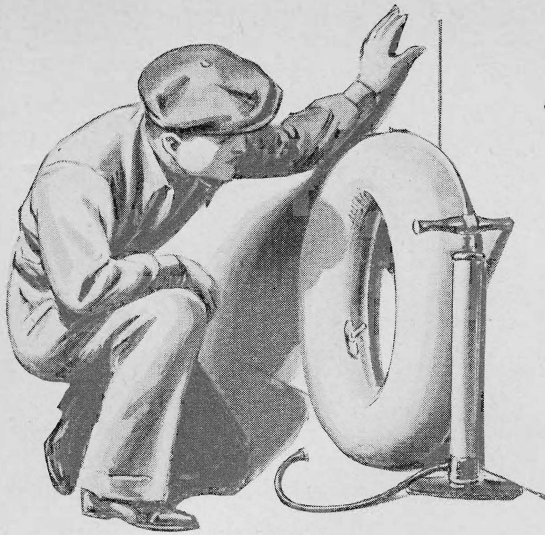
Twenty-penny spike, used as above, makes a good cam wrench

Home Vulcanizing

ORDINARY cold tire patches can be made self-vulcanizing by applying, in sparing amounts, a solution of thirty grains of sulphur chloride dissolved in an ounce of carbon disulphide. After the mended tire has been driven for a short length of time, the patch will automatically become vulcanized.—G. S. G.



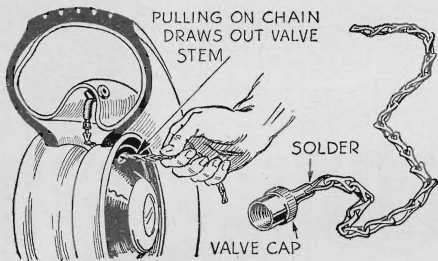
Home-repair job on your car's timing gears can be accomplished in the manner illustrated



Helpful Hints FOR MOTORISTS

Experienced Drivers Among Our Readers
Offer You These Valuable Suggestions

WHEN no water is handy, it is sometimes difficult to determine whether or not an inner tube has a slow leak. A kink that the writer has found valuable in such cases is shown in the illustration above. The tube is inflated and rested against the wall. Then a pin is stuck into the wall above the tire so its head touches the top surface of the rubber. Even the smallest leak will cause the tube to sink away from the pin in five or ten minutes.—E.J.N.

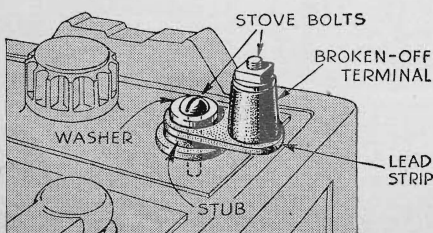


Replacing Tire Valves

OWNERS of cars equipped with so-called "air-wheel" tires may experience some difficulty replacing the valve stem in the rim when making tube repairs. To make the job easier, solder a short length of light chain to an extra valve cap. The cap then can be screwed to the valve and the chain pulled through the hole in the rim to lead the stem into place. The chain should be about a foot in length to allow plenty of slack. When not in use, the chain and cap can be stored on the valve of the spare tire.—F.L.C.

Broken Battery Terminal

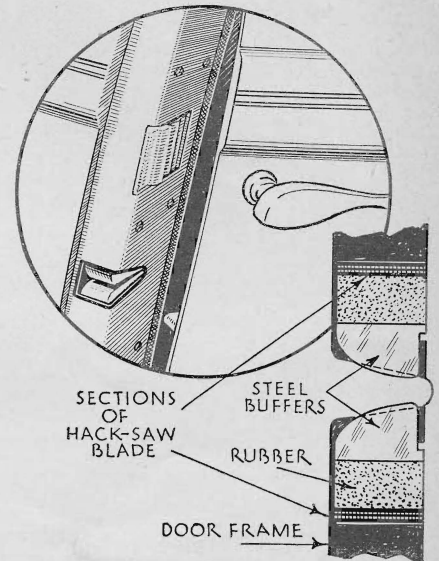
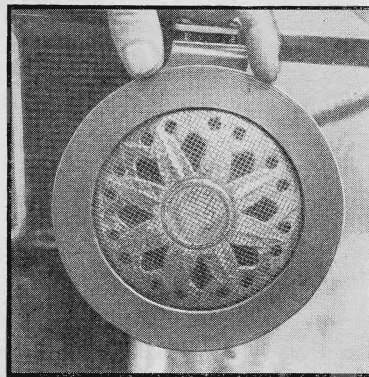
WHILE trying to loosen one of the cable clamps on my car battery recently, I accidentally sheared off one of



the terminals. It had broken off so close, that not even a slight projection remained to serve as a terminal for the clamp. After trying several ideas without success I made the temporary terminal shown in the sketch. From a small sheet of lead, I cut a flat arm about 1 in. wide and 2 in. long. At one end I mounted the sheared-off end of the terminal with a stout stove bolt. Through a hole in the other end, I drove a second stove bolt into a hole drilled in the terminal base on the battery.—E.D.T.

Insect Shield for Horn

ORDINARY window screening and a soft rubber telephone base ring can be combined to form an inexpensive insect shield for the flat, open horns used on modern cars. Simply cut the screening to fit the front face of the horn, hold it in place, and slip the rubber ring in place over the rim. The ring will fit snugly and hold the screening tightly over the open face of the horn.—F.W.B., Jr.



Stopping Door Rattles

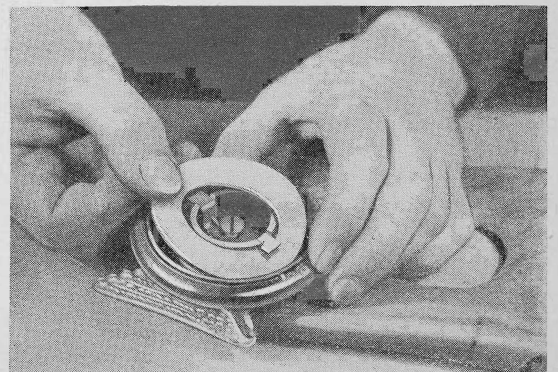
ANNOYING closed-car door rattles often can be silenced with small sections of discarded hack-saw blades. To make the repair, remove the steel buffers and rubber pads from the door jamb and place two shims of hack-saw blade steel between the jamb frame and the outer edges of the rubber blocks. The shims will reduce the clearance between the steel buffers and tend to hold the wedge-shaped projection on the door frame tightly in place.—C.H.J.

Soap for Squeaking Hood

ORDINARY hand soap rubbed on the fabric lacings under the hood at the cowl and radiator frames will eliminate annoying squeaks and rattles that sometimes develop. Soap is better than grease as it does not collect dirt.—R.L.S.

Rubber Gasket for Leaky Radiator Cap

IF THE radiator cap on your car fits loosely, allowing water to spray back on the windshield when the radiator is filled, remove the worn gasket and replace it with one made of rubber. Measure the inside of the cap with a drawing compass and then, with the compass, draw an inked circle on two thicknesses of live inner tube that have been cemented together. Wet the rubber for ease in cutting with scissors. The rubber gasket will give a perfectly water-tight seal that will last.—K.M.

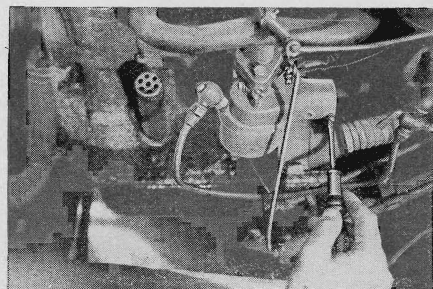




Ideas for Car Owners

Ingenious Suggestions Made by Our Readers That Will Save You Both Time and Trouble When Doing Repair Jobs on Auto at Home

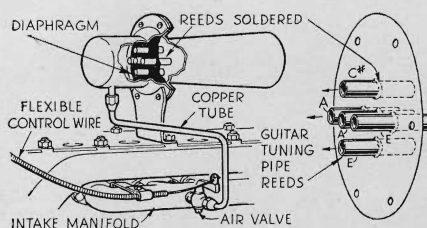
AFTER several discouraging and unsuccessful attempts to tighten the tie bolt on a car spring after replacing one of the leaves, I hit on the idea shown in the illustration. It not only eliminates the necessity of fighting the combined power of the spring but it also makes it possible to tighten the nut with the full assurance that none of the threads have been stripped in the process. The method consists simply of placing the head of the tie bolt in the vise so that its shank projects up. Then, starting with the largest spring, the leaves are dropped over the bolt and fanned out like the spokes of a wheel as shown. When all of the leaves are in place, it is a simple matter to run the nut up on the bolt with your fingers. All that remains then is to push the leaves into place one above the other. This can be done by forcing them around as far as they will go by hand and finishing the job with a rubber mallet. The spring can be placed on the flat top of a bench and pounded until the leaves line up. If no rubber mallet is available, cover the springs with a protecting layer of heavy cloth and use a mallet of the wooden variety. The bolt then can be tightened.—C. M. G.



Stopping Vapor Lock by Cutting Out Preheater

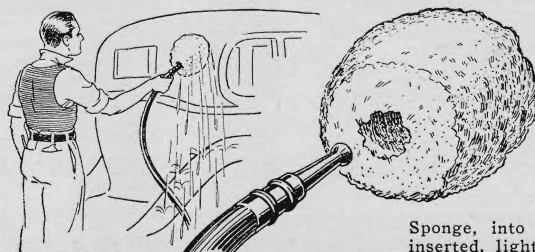
IF YOU drive an old-style car and are bothered with chronic vapor lock, it will pay you to inspect the air intake on the carburetor. On many of the models brought

out a number of years ago, a heater on the exhaust serves to warm the air entering the carburetor. This system worked out very well with old-style gasoline, but with the modern fuels it has a tendency to supply more preheating than is desired. The remedy, however, is a simple one. Merely unhook the flexible tubing that connects the heater to the carburetor by loosening the set screw that holds it in place and pulling the end of the tube free. This change has not only improved the general behavior of the writer's car but has given greater pick-up and a higher speed. Now, even in hot weather there is not the slightest indication of vapor lock.—L. Van T.

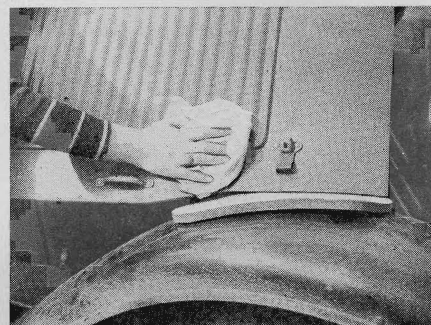


Musical Vacuum Horn Made of Odd Parts

BY COMBINING an old horn casing, a guitar tuner, some flexible copper tubing, an air valve, and a few other odds and ends, the amateur mechanic can assemble a novel musical horn for his car. Being connected to the intake manifold, the horn is operated by vacuum. As shown in the illustration, the tuner reeds, selected to form a musical chord, first are soldered in small holes drilled in the diaphragm. Then, when the rear horn chamber, which originally housed the fan motor, has been made air-tight, one end of the flexible tube is soldered over a hole drilled in the side of the casing. The other end of this tube leads to a lever-handled air valve (cock) mounted on the motor's intake manifold. Finally, a push rod leading to a convenient point on the dash board can be arranged for opening and closing the valve. When the valve is open, the air will be sucked through, and the reeds will sound their musical notes.—C. A. L.

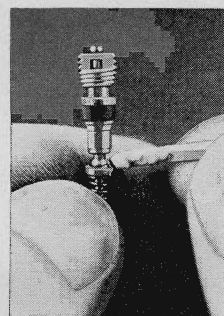


Sponge, into which nozzle of garden hose is inserted, lightens the job of washing your car



New Suggestion for Polishing Car's Hood

TO ELIMINATE the back-breaking from hood polishing, the writer follows the method illustrated. The hood is lifted and then rested on a rubber or cloth pad placed on the front mudguard. Incidentally, the inexpensive sponge-rubber kneeling pads sold in most five- and ten-cent stores form a fine protection for the finish on the fender.—R. P.



Use Soap to Seal Air Valve

WHEN the valve on an automobile tire refuses to close properly, causing a slow leak, it can be repaired with soap. Select a

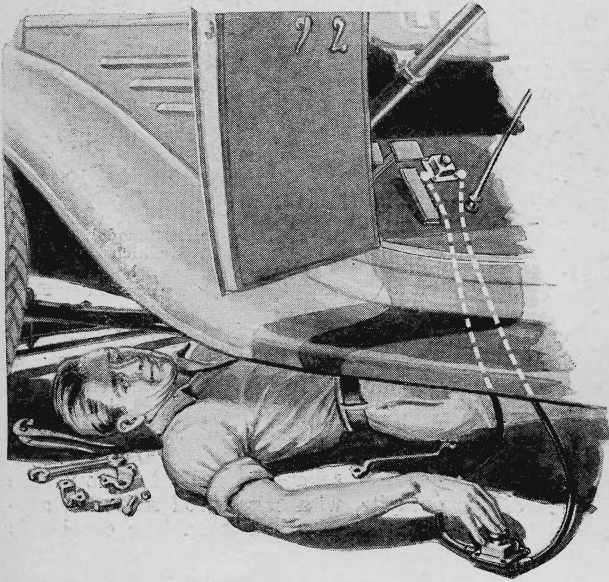
piece of soap that is soft from recent use and, after removing the valve from the tire stem, smear a bit of the soft soap on the rubber insert or seat and also on the rubber plug. The film of soap will form a perfect air-tight seal unless the valve is too badly worn.—K. M.

Sponge on Garden Hose Speeds Car Washing

AN ORDINARY sponge, with a hole cut in it to take the nozzle of a garden hose, will form a handy addition to your car-washing equipment. The sponge, which can be wired in place or held with your hand, will prevent the water from splashing. Also, because fresh water is always being applied, the sponge will not smear or smudge. One rinsing is all that is required.—H. A.

Useful Kinks *for* Motorists

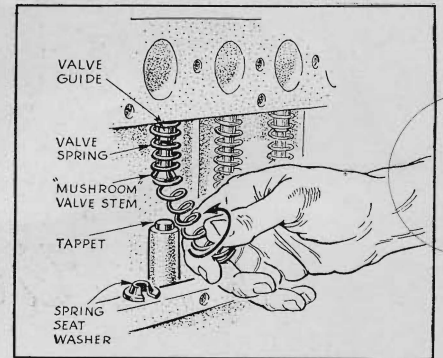
Starter Motor Turns Crankshaft During Repairs



With cables attached to starter motor and a switch handy, it is easy to turn the crankshaft while working under car

WHEN work is being done on connecting rod bearings, it is necessary to change the position of the crankshaft from time to time. This means that if the home mechanic is working alone, he must crawl out from under the car repeatedly to man the crank. I get around this by using the starter motor as outlined in the sketch. First, I connect a spare starter pedal switch to two pieces of heavy cable. Then I wire the two remaining ends of the cables to the starter switch on the car. By making the cables long enough, I can operate the starter motor from any position. To reduce the load, I unscrew several spark plugs.—L. VAN T.

Suggestions from Our Readers That Will Help All Who Work on Autos Make Their Repairs Quicker and with Less Effort



Twisting Big Help in Removing Valve Springs

ON CARS having mushroom type valves, removing the valve springs sometimes proves to be quite a job. Generally, this is caused by the fact that the spirals of the spring catch on the grooved end of the valve stem. Instead of resorting to prying and pulling the next time this happens, simply twist the spring as you would in loosening a screw. The tip of the valve stem will follow along the pitch of the spring, forcing the spring free.—C. B.

Balancing Repair Boot

WHEN a repair boot is applied to a break in the shoe of a front tire, a certain amount of weight is added at that point and a shimmying front wheel may result. To avoid this, place two boots in the casing, one over the break and the other at a point directly opposite the break. This will add weight at two points, 180 degrees apart, with the result that each boot will counterbalance the other.—J. E. H.

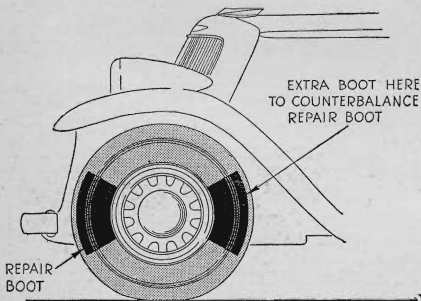
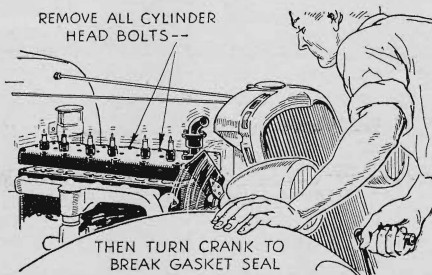


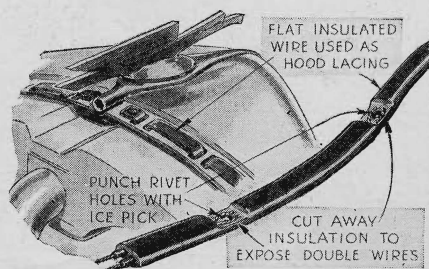
Illustration shows how second boot is added to counterbalance repair boot and prevent shimmying



With the cylinder-head bolts removed, compression can be used to break gasket seal

Squeaking Hood Due to the Worn Laces

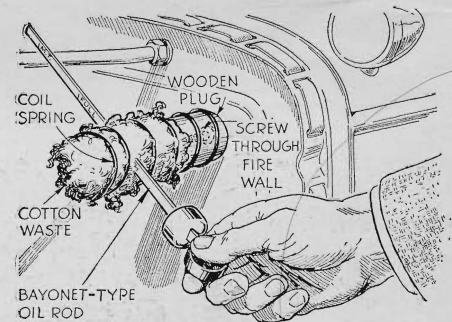
IF YOUR hood squeaks, nine chances out of ten it is caused by a worn hood lacing. If no web hood lacing is handy for a replacement, you can use a length of insulated wire of the flat, two-wire type to make the repair. Simply cut away the insulation at the points where the rivets are to go, spread the two wires with an ice pick or other pointed tool, and insert the rivets.—R. R.



Hood squeaks, caused by a worn lacing, can be easily cured as illustrated. Insulated wire in this case is used in place of usual lacing

Uses Compression to Break Gasket Head

BREAKING the cylinder-head gasket seal when making repairs will be greatly simplified if you will rely on the force of compression of the motor instead of your own muscle. Simply remove all of the cylinder-head bolts and, leaving the spark plugs in place, give the motor a few turns with the crank or the starter motor. Enough pressure will be generated inside the cylinders to break the seal and loosen the head. Many times the gasket can be used over again.—M. L. W.



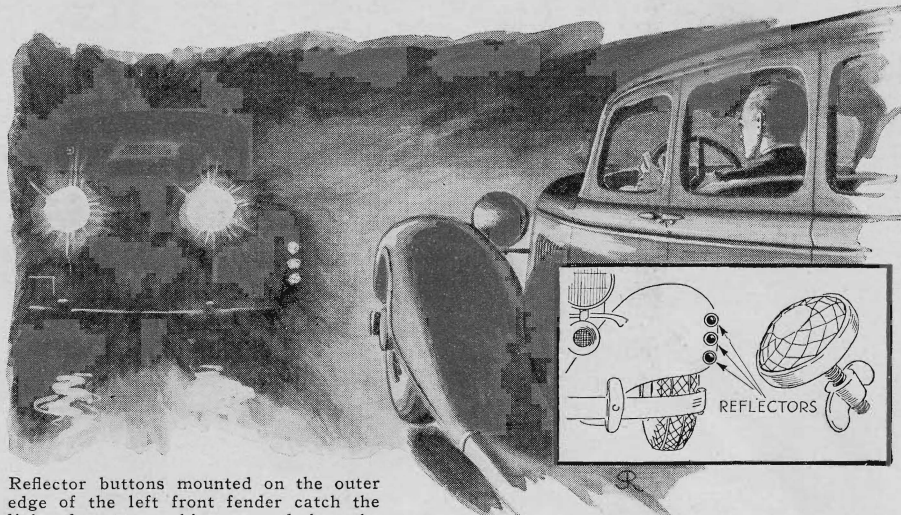
Coil Spring and Waste Makes Oil Rod Wiper

A STIFF coil spring stuffed with cotton waste and mounted on the rear partition of the motor compartment on your car will serve as a handy oil gage wiper. Simply sticking the oil rod through the waste will wipe it clean and allow an accurate oil level reading to be made. Being housed in a spring, the waste can be renewed easily. A cylinder of wood forced into the rear of the spring and held with staples will make it possible to fasten the wiper in place with a screw.—R. P.

Helpful Kinks *for* Your Car

*New Ideas for
Repair and Operation
from Our Readers*

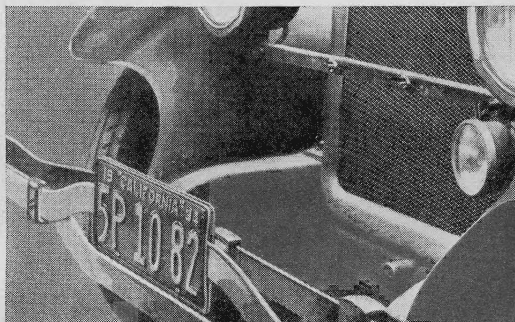
THE danger of sideswiping due to headlight glare can be reduced by mounting small red reflector buttons on the outer edge of your left front fender. Reflecting the light from approaching headlights, they mark the outer edge of your car. Any red glass reflectors of the type sold as license-plate mounting bolts can be used. They can be mounted in holes drilled in the fender or they can be provided with spring clips.—H. V. L.



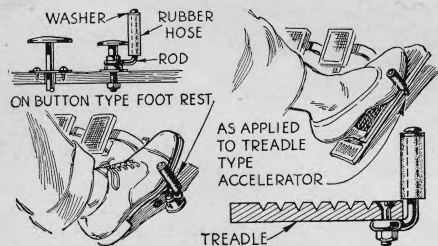
Reflector buttons mounted on the outer edge of the left front fender catch the light of an approaching car and show the driver how far over your fenders extend

Old License Plates Mount New Ones

A SIMPLE, inexpensive front-bumper mount for a license plate can be had by utilizing an old discarded plate from the year before. The new plate is placed in front of the bumper and the old one, reversed to cover the figures, is placed back of the bumper. The two are fastened together with four small bolts run through the regular mounting holes. Strips of inner tubing placed between the plates and the bumper will prevent any annoying rattles from developing.—H. M. H.



Last year's license plate will furnish a mounting for the current one, if the two are bolted to the bumper



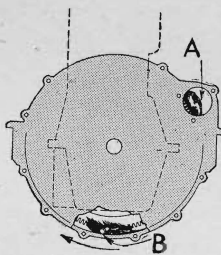
Guides Foot to Throttle

AN EASILY-MADE foot guide for the accelerator consists of an iron rod bent L-shape, provided with a loop to fit over the mounting bolt on the foot rest, and fitted with a short length of rubber tubing. The same idea can be applied to the treadle type of accelerator by mounting the guide on the right hand edge of the flat pedal with a bolt as indicated in the illustration.—E. T.

A New Use for Grease

IF A starter spring bolt or a similar part breaks, nine times out of ten it will drop into the flywheel and clutch housing. To open the under-motor at this point presents a troublesome problem, but the parts can often be removed by making use of a handful of heavy grease. The grease (A) is placed on the fly-

wheel and the motor is cranked by hand. The parts (B) will become embedded and, by careful cranking, can be carried around to the starter opening where they can be removed. Continue "fishing" until you are sure all of the parts have been retrieved and remove all traces of the grease from the flywheel to prevent gumming the starter motor spindle and gear.—G. P.

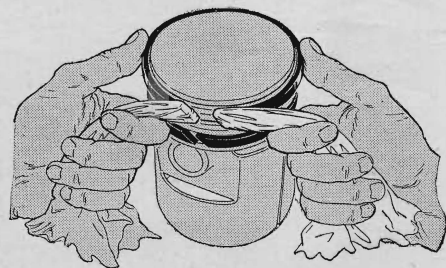


Broken parts can be taken from the clutch housing with grease

Killing Wheel Squeaks

SINCE the squeaking of wood wheel spokes is caused by dryness of the wood, tightening the spoke bolts is usually ineffective. A better cure is to brush on as much hot raw linseed oil as the wood will absorb. This will stop the squeaks and help to prevent further drying of the wood.—K. M.

Squeaking of wood wheels, caused by dryness, can be stopped by brushing on as much hot linseed oil as possible



Simple Ring Expander

FOR installing piston rings, a simple expander can be had by making use of two pieces of heavy cloth as shown. One end of each cloth is hooked over the ends of the piston ring at the split and provide enough purchase to allow the ring to be pulled apart. Once the ring is in place, the cloths can be freed.—J. C.

Fixing Windshield Wiper

OFTENTIMES, a faulty vacuum-type windshield wiper can be fixed by turning it on and holding the wiper arm in one position against the force of the air-driven piston. The air leaking through the wiper motor loosens the valve and the piston.—H. P.



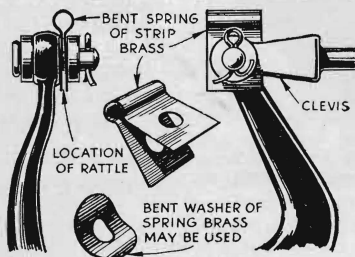
Ingenious Ideas FOR CAR OWNERS

Our Readers Furnish New Suggestions
For Handy Repairs and Improvements

ORDINARILY, the job of equalizing brakes presents a difficult problem to the amateur mechanic and his meager supply of tools. However, by assembling the novel brake tester, shown in the illustration at upper right, anyone can obtain an accurate adjustment quickly and easily. The tester consists simply of a 1-by 3-in. board four feet long supplied at one end with two cupped blocks spaced and shaped to fit a tire and at the other with a series of notches or V-cuts. To this, a pail and some sand or stones are added to complete the equipment. To equalize a set of brakes, first wedge a broom handle or other piece of wood between the front seat and the brake pedal in such a way that the brakes are applied just enough to allow the loosest brake to slip slightly when an attempt is made to turn the wheel. Then jack up that wheel, tighten the brake adjusting bolt as much as possible, and slip the brake adjuster in place over the tire. Finally, hang the weighted pail in one of the notches and loosen the brake adjustment until the weighted lever barely turns the wheel. To bring the remaining brakes to the same adjustment, simply repeat the process with each wheel with the pail hung in the right notch. If you wish the rear brakes to grip before the front units, simply adjust the rear wheels with the weight in the end notch and set the front brakes with the weight hung in the second V-cut.—S. A. F.

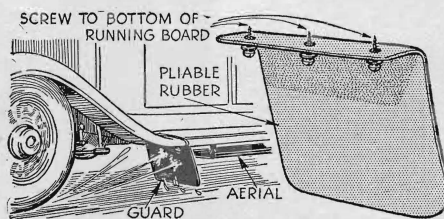
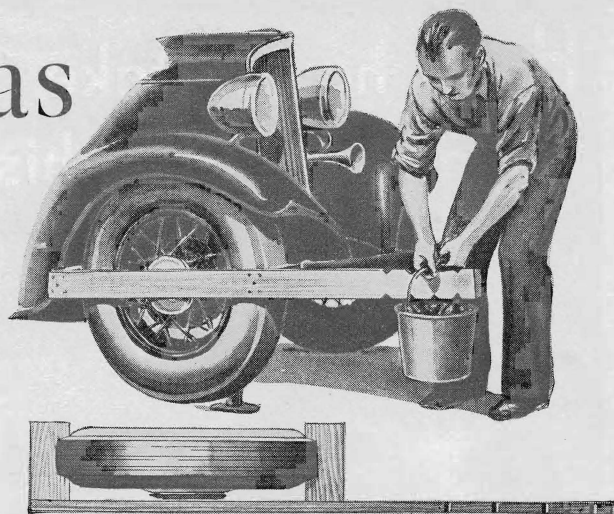
Silencing Brake Rods With a Spring Clip

ALTHOUGH various types of clips and springs are used to silence brake rod clevis joints, most of them are designed to stop only one kind of rattle. A better and more universal clevis-joint silencer is the homemade spring clip shown in the illustration. Made from spring brass or a wide corset steel, it is placed between the outer washer and the brake link at the joint. Serving to spread the parts, it holds the assembly tight, yet does not interfere with the brake adjustment. A spring washer bent as shown also can be used.—D. J.



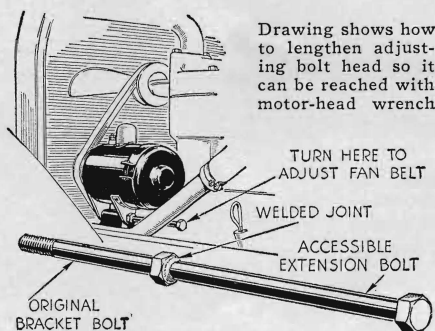
Homemade clip that silences brake rod joint

The apparatus illustrated at right, consisting of a notched rod and weighted pail, is used to gage brakes and equalize their pressure on wheels



Rubber on Running Board Protects Radio Antenna

BY MOUNTING a square of rubber under the front edge of the running board, you can protect a running-board type of radio antenna from injury. It also will serve as a shield to prevent mud from being splashed up where it might coat the antenna and cause a possible short-circuit to the car body. Any piece of pliable sheet rubber can be used; rubber stair pads form an exceptionally good source of material.—D. W. P.

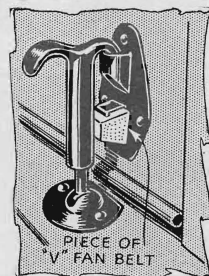


Handy Bolt Extension Speeds Adjustment Work

ON CARS where fan-belt tension is adjusted by moving the generator, it is often difficult to find a wrench that will both fit and reach the partly hidden bolt on the generator bracket. To get around this on my car, I had a one- and one-half-inch length of cylinder-head bolt welded to the top of the adjusting bolt head. This provides just the right amount of extension and makes it possible for me to use my cylinder-head wrench when making adjustments. Incidentally, this same kink can be applied to screws, bolts, and adjustments located in out-of-the-way places on any piece of machinery.—E. T. G., Jr.

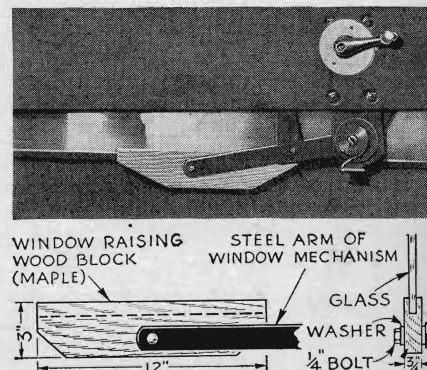
Stopping Hood Rattles With Old Fan Belt

WHEN the rubber pads under hood fasteners wear, the hood rattles. A repair can be made with a section of old fan belt. Remove the worn rubber and insert a suitable length of old fan belt.—H. V. T.



How to Repair Metal Arm That Supports Window

IF YOU own a closed car and an opened window suddenly fails to respond when the crank is turned, it may be that the metal arm supporting the glass has rusted through. How the writer repaired this arm on his car is shown in the illustrations. First, a new supporting arm for the glass was fashioned from a piece of three-quarter-inch maple. Along the top edge, a one-quarter-inch groove was cut to take the bottom of the glass. Then the original stud at the end of the steel raising arm was punched out and a one-quarter-inch stove bolt substituted as a mounting for the new support, an iron washer being used on each side of the wood block and the end of the bolt being peened over to serve as a rivet. To make the glass slide easily, the groove in the support was coated with graphite.—H. P. S.



An easy way of repairing metal arm that supports a closed car window is shown above